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CLAIMS

1. A temperature-limiting device (14) for an electric heater (2), the heater (2) being adapted for location
5 behind a surface (4) to be heated and comprising a dish-like support (6) having therein at least one electric heating element (12) having a first terminal region (12A) and a second terminal region (12B), the device being characterised by thermally responsive bimetallic means
10 (22) provided in a housing (16), the housing (16) being adapted to be supported at a peripheral region of the heater (2), at least partially externally of the dish-like support (6), the thermally responsive bimetallic means (22) being adapted to be thermally coupled with the
15 heater (2) to sense heat generated therein by the at least one heating element (12) and to respond at a predetermined temperature to operate at least one switch means (18) located in the housing (16), the housing (16) having a first side (32) and a second side (38) opposite
20 to each other provided with a first electrically conductive element (34) and a second electrically conductive element (40) accessible at the sides (32, 38) of the housing (16), externally of the dish-like support (6), for electrical connection to the first and second
25 terminal regions (12A, 12B) respectively of the at least one electric heating element (12).

2. A device as claimed in claim 1, characterised in that electrical connection of the first and second
30 electrically conductive elements (34, 40) to the respective first and second terminal regions (12A, 12B) of the at least one heating element (12) is by means of direct contact between the electrically conductive elements (34, 40) and the terminal regions (12A, 12B).

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3. A device as claimed in claim 1 or 2, characterised in that the first and second terminal regions (12A, 12B) of the at least one heating element (12) extend through apertures (48, 50) in the dish-like support (6) for
5 electrical connection to the first and second electrically conductive elements (34, 40).

4. A device as claimed in any preceding claim, characterised in that the first and second terminal
10 regions (12A, 12B) of the at least one heating element (12) are electrically connected to the first and second electrically conductive elements (34, 40) by welding.

5. A device as claimed in any preceding claim,
15 characterised in that at least one of the first and second electrically conductive elements (34, 40) is provided with a portion (36, 42) selected from a strip-like portion and a flanged portion for securing to at least one of the first and second terminal regions (12A,
20 12B) of the at least one heating element (12).

6. A device as claimed in claim 5, characterised in that the strip-like portion has a plane thereof disposed in any desired orientation from a vertical plane to a
25 horizontal plane.

7. A device as claimed in claim 5, characterised in that the flanged portion has a wall portion with a dependant laterally-directed ledge portion (36A, 42A).
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8. A device as claimed in any one of claims 5 to 7, characterised in that at least one of the first and second electrically conductive elements (34, 40) has the portion (36, 42) extending in a direction towards the

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heater (2) and at a predetermined angle relative to a rim of the dish-like support (6).

9. A device as claimed in claim 1, characterised in
5 that one of the first and second electrically conductive elements (34, 40) is arranged for electrical connection to a terminal region selected from the respective first and second terminal regions (12A, 12B) of the at least one heating element (12) by way of at least one
10 electrically conductive link (52).

10. A device as claimed in claim 1, characterised in that both of the first and second electrically conductive elements (34, 40) are arranged for electrical connection
15 to the respective first and second terminal regions (12A, 12B) of the at least one heating element (12) by way of at least one electrically conductive link (52).

11. A device as claimed in claim 9 or 10, characterised
20 in that the at least one electrically conductive link (52) is of a form selected from wire and strip form.

12. A device as claimed in claim 9, 10 or 11, characterised in that the at least one electrically
25 conductive link (52) extends through apertures (48, 50) in the dish-like support (6) for electrical connection to the first and second electrically conductive elements (34, 40).

30 13. A device as claimed in any one of claims 9 to 12, characterised in that the at least one electrically conductive link (52) is electrically connected to the first and second electrically conductive elements (34, 40) by welding.

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14. A device as claimed in any one of claims 9 to 13, characterised in that at least one of the first and second electrically conductive elements (34, 40) is provided with a portion (36, 42) selected from a strip-
5 like portion and a flanged portion for securing to the at least one electrically conductive link (52).

15. A device as claimed in claim 14 characterised in that the strip-like portion has a plane thereof disposed
10 in any desired orientation from a vertical plane to a horizontal plane.

16. A device as claimed in claim 13, characterised in that the flanged portion has a wall portion with a
15 dependant laterally-directed ledge portion (36A, 42A).

17. A device as claimed in any one of claims 9 to 16, characterised in that at least one of the first and second electrically conductive elements (34, 40) has the
20 portion (36, 42) extending in a direction towards the heater (2) and at a predetermined angle relative to a rim of the dish-like support (6).

18. A device as claimed in any preceding claim,
25 characterised in that the first and second electrically conductive elements (34, 40) extend laterally at the first and second opposite sides (32, 38) of the housing (16).

30 19. A device as claimed in any preceding claim, characterised in that the at least one electric heating element is of corrugated ribbon form (12) supported upstanding on edge in the dish-like support (6).

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20. A device as claimed in claim 19 characterised in that the first and second terminal regions (12A, 12B) of the at least one electric heating element of corrugated ribbon form (12) are connected directly to the first and second electrically conductive elements (34, 40) and have an orientation substantially the same as that of the at least one electric heating element (12) as supported in the dish-like support (6).

21. A device as claimed in claim 19, characterised in that the first and second terminal regions (12A, 12B) of the at least one electric heating element of corrugated ribbon form (12) are connected directly to the first and second electrically conductive elements (34, 40) and are twisted through an appropriate angle for connection to the first and second electrically conductive elements (34, 40).

22. A device as claimed in any preceding claim, characterised in that the first and second electrically conductive elements (34, 40) comprise metal.

23. A device as claimed in claim 22, characterised in that the metal is selected from stainless steel and nickel-plated steel.

24. A device as claimed in any preceding claim, characterised in that the first electrically conductive element is electrically connected to the at least one switch means (18) in the housing (16) and the second electrically conductive element is adapted for electrical connection to an external lead wire.

25. A device as claimed in any preceding claim, characterised in that at least a third electrically

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conductive terminal (24) is provided at a side selected from the first and second sides (32, 38) of the housing (16).

5 26. A device as claimed in claim 25, characterised in that the at least third electrically conductive terminal (24) is arranged for electrical connection to the at least one switch means (18) in the housing (16).

10 27. A device as claimed in claim 25 or 26, characterised in that the at least third electrically conductive terminal (24) is arranged for electrical connection to an external lead wire.

15 28. A device as claimed in any preceding claim, characterised in that the housing (16) of the temperature-limiting device (14) comprises ceramic material.

20 29. A device as claimed in any preceding claim, characterised in that the thermally responsive bimetallic means (22) is thermally coupled with the heater (2) by means of an elongate thermally conductive member (26) which is adapted to extend from the housing (16) at least
25 partly across the heater (2) and overlying the at least one heating element (12).

30. A device as claimed in claim 29, characterised in that the elongate member (26) is of metal.

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31. A device as claimed in claim 29 or 30, characterised in that the elongate member (26) is of a form selected from rod, beam and tube form.

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32. A device as claimed in any one of claims 29 to 31, characterised in that the elongate member (26) has an end (28) thereof in direct contact with the bimetallic means (22).

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33. A device as claimed in any one of claims 29 to 31, characterised in that the elongate member (26) has an end (28) thereof in indirect contact with the bimetallic means (22).

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34. A device as claimed in any one of claims 1 to 28, characterised in that the housing (16) has a front face (30) thereof adapted to be exposed to thermal radiation from the heater (2), through an aperture (54) provided in a rim of the dish-like support (6), the bimetallic means (22) being adapted to be directly exposed to the thermal radiation from the heater (2).

35. A device as claimed in any one of claims 1 to 28, characterised in that the housing (16) has a front face (30) thereof adapted to be exposed to thermal radiation from the heater (2), through an aperture (54) provided in a rim of the dish-like support (6), the bimetallic means (22) being in thermo-conducting relationship with thermally conducting means directly exposed, at the front face (30) of the housing (16), to the thermal radiation from the heater (2).

36. A device as claimed in claim 34 or 35, characterised in that the housing (16) is adapted to be partly inserted into the heater (2) through the aperture (54) provided in the rim of the dish-like support (6).

37. A device as claimed in any preceding claim, characterised in that the bimetallic means (22) comprises

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a snap disc (22), operating at a predetermined temperature to displace electric contacts of the at least one switch means (18).

5 38. A device as claimed in claim 37, characterised in that the snap disc (22) operates to displace the electric contacts by way of an intermediate member (24).

39. A device as claimed in claim 38, characterised in
10 that the intermediate member (24) is of rod form.

40. A device as claimed in any one of claims 1 to 36, characterised in that the bimetallic means (22) comprises a member which undergoes increasing deflection with
15 increasing temperature and operates to cause displacement of electric contacts of the at least one switch means (18) at a predetermined temperature.

41. A device as claimed in claim 40, characterised in
20 that the member which undergoes increasing deflection with increasing temperature is of strip form.

42. A device as claimed in claim 40 or 41, characterised in that the electric contacts are incorporated in a snap
25 switch arrangement.

43. An electric heater (2) characterised in being provided with a temperature-limiting device (14) as claimed in any preceding claim.